Crater et al., *Object-oriented programmable industrial controller with distributed interface architecture*, filed May 29, 1998 (hereinafter "Crater"). Applicant again requested an interview, which Examiner graciously granted. The interview was held on Feb. 6 with Examiners Bashore and Stevens. The basis for the interview was a written *Argument* which was faxed to Examiner Stevens on 2/3/2006. The *Argument* traversed the rejections. What is presented in the following is an expanded version of the *Argument.*

Traversal

The following *Traversal* will first present an overview of an embodiment of what Applicant is claiming, then a discussion of claim 1. That will be followed by an overview of the disclosures of the Hirsch and Crater references, and then a demonstration that the claims' limitations include features of the embodiment which are not present in the references. The traversal will finally discuss the dependent claims.

Overview of an embodiment of what Applicant is claiming

What follows are sections from Applicants' Specification as filed which provide an overview of an embodiment of what Applicant is claiming. Page and line numbers are from the Substitute Specification filed on 1/20/05:

> In broad terms, process control system 801 works by making records of processes that are being controlled in a table in database system 825 and using predefined queries that are stored in a table database system 825 to repeatedly query the table and perform activities that are predefined for the query on the result set of records returned by the query. The repeated queries are executed automatically by system 801. The predefined and automatically executed queries are termed herein *administrative queries.* An activity is made up of a number of predefined *actions,* and when the activity is performed, system 801 executes its actions. The activities to be performed by an administrative query, as well as an activity's actions, are also defined by entries in tables in the database system, and log tables in the database system determine the state of a process record returned by the administrative query with regard to that execution of the administrative query. When an execution of a query returns a process record, system 801 uses the state information to determine what activity is to be performed with regard to the process record. (Page 8, lines 3-17)

... most actions involve changing one or more values of fields in the PR record upon which the action is performed. Such changes of course affect what queries will return the PR record, and thus move the PR record through the stages of a process that the PR record is an instance of. The manner in which the types of certain fields in the PR records are defined greatly increases the ease and safety with which actions may be defined and modified. Many of these types are defined by system 801; others may be defined by users. In both cases, the types are defined using the facilities which database system 825 provides for user-defined types. (page 63, lines 14-22)

FIG. 13 shows the graphical user interface for defining an AA_set_value action in system 801. These actions set fields in PR records whose values neither represent times or dates nor represent persons or roles. The fields' types may be defined by system 801 or users of system 801, but the values for each type must constitute an ordered set. An example of such a field is a priority field for which the values may be {low, normal, emergency}. Window 1301 contains a list of fields in PR records in system 801 that may be set by AA_set_value actions. The entry 1302 for each field has the field's name (1303), its type (1305), i.e., whether its values may belong to a single type or to more than one type, the operation to be performed on the field's value (1307), which is one of set, increment, or clear, as shown by the drop-down menu at 1311, and the value to which the field is to be set (1309), if the set operation is specified. Row 1302 thus specifies the set value action as setting the value of the field priority to Emergency. The detail of window 1301 at 1310 shows how the user may see the available operations by clicking on field 1307 in entry 1302 to get drop-down menu 1311, from which the user can select the desired operation. The detail at 1313 shows the window showing the possible values of the field priority which appears when the user clicks on field 1309 in row 1302. The user may select one of the values in the window. Creation or modification of an AA_set_value action in window 1301 of course results in the creation or modification of a record in AA_set_values table 859. As shown by this interface, system 801 separates definition of PR records from definition of operations on PR records.

FIG. 13 also shows a number of general characteristics of the windows that are used to define actions in a preferred embodiment. There is a window for each kind of action, and each window contains a table which has an entry for every field in any of the PR records defined in system 801 which can be set by the kind of action that the window defines. An entry has two parts: the first part, 1303, is a field which identifies the field in the PR record which will be affected by the action. The second part 1306 is one or more fields that define the action to be taken on the field identified by field 1303. What fields are in 1306 and how they define the action depend on the kind of action, or put another way, on the type of the values which field 1303 may contain. (p. 67, line 5-p. 68, line 11)

Several features of the embodiment of the invention as described in the above overview are particularly relevant to the present discussion:

- A PR record represents the current state of a process being monitored. The process's current state is specified by values in fields in the PR records
- The embodiment automatically performs administrative queries on PR records that look for PR records having particular states as indicated by particular values in the record's fields.
- An administrative query may have an action associated with it that sets the value of a field in PR records returned by the administrative query. An administrative query that detects PR records having a particular state can thus perform an action that moves the PR record to another state.
- The embodiment provides a GUI which permits a user to define an action that sets the value of a field in a PR record and associate the action with an administrative query.

As can be seen from the foregoing, the database system in Applicants' embodiment of the invention is not merely a passive collection of information about a process. Instead, the PR record *represents* the process and moves through a succession of states as the process moves through the succession of states. One of the mechanisms for moving the PR record through the succession of states is administrative queries with associated actions. The GUI permits users to define actions and associate them with administrative queries.

The embodiment and Applicant's claim 1

Applicants' application has a single independent claim, claim 1, which as amended in the *Submission* that accompanied the RCE, reads as follows:

> **1.** A graphical user interface for specifying an action which modifies a value of a field of a record stored in a memory device, the action, once specified, being thereafter automatically performed when a query with which the action is associated returns the record, the query being executed on a processor that has access to the memory device and interacts with the graphical user interface, and
> the graphical user interface comprising:
> a window containing a table wherein the field of the record has an entry that is selectable by the user, the entry including

a first field of the entry that identifies the field of the record to be modified by the action; and

one or more action fields of the entry that, when the user has selected the entry, the user may set to specify the action.

In this claim, lines 1-4 clearly set forth the relationship in the embodiment between the action, the query, and the records returned by the query described above and lines 7-12 set forth the user interface that is used to specify the action. Since terms such as "field of the record" and "action" which appear in the portion of the claim that describes the GUI are defined in the preamble, the preamble must be taken to limit the body of the claim.

The disclosures of Hirsch and Crater

Hirsch and Crater both disclose databases that contain information which is used to control manufacturing processes. An important distinction between the databases of Hirsch and Crater and the database in the embodiment of Applicant's invention is that the databases of Hirsch and Crater are passive collections of information The information in the databases is used to produce programs that control the actual processes, but the database does not change as the state of the process changes. Thus, Hirsch and Crater provide programming GUIs which the user may use to define objects in the database, but in neither case do they have a GUI which permits the user to specify an action, which, "once specified, [is] thereafter automatically performed when a query with which the action is associated returns the record" (claim 1, lines 2-4).

The disclosure of Hirsch

Hirsch's disclosure is well-described by its Abstract:

> The present invention provides a method and system, for use with a computer integrated management system, to classify and serve as the data and information repository for a process or product specification and to classify groups of process resources. The Process Type method provides information to describe the outcome of a process. The organization describing a Process Type includes three basic components. The first component is an action. The action component describes what is to be done by the process. The second component is material. The material component describes the element upon which or with which the action described by the action component is performed. The third component is technology. The technology component describes the resource which

> performs the action described by the action component with or upon the material described by the material component. The resulting Process Type is then used to control a process or the generation of a product to achieve a desired result.

As set forth in col. 2, lines 23-27,

> Data describing the managed set of manufacturing components is stored in an information repository and made available to all Computer Integrated Manufacturing (CIM) software applications and embedded equipment control software. Thus, it is another object of the present invention to ensure consistent representation of relationships and dependencies between the managed manufacturing components.

There is clearly nothing in Hirsch which works anything like the database of the preferred embodiment. In his rejection of claim 1, Examiner cites FIGs. 3 and 10, but what is shown in these figures is GUIs that are provided to define the contents of the repository. In particular, FIG. 3 is the GUI for creating, editing, deleting or reviewing a process type in the repository. FIG. 10 is the GUI for creating, editing, or deleting a plan for sampling a product during the process that makes it. As set forth at col. 11, lines 33-35, the data sampling plan "includes the parameters necessary for the equipment to perform the measurements". The GUI of FIG. 10 thus specifies an action which is carried out by the equipment doing the processing; it does not specify an action which is carried out on records in the repository, as required for Applicants' claim 1.

The disclosure of Crater

Crater discloses an object-oriented approach to process control programs. FIG. 1 shows a controller 100 for use with a machine; included in the controller is control block 140, which contains "computer-executable instructions for actually operating controlled equipment via I/O modules 120. (col. 8, lines 36-38). A detailed view of control block 140 is provided by FIG. 3, described beginning at col. 13, line 22. Object manager and database 315 contains objects which specify actions to be performed by the controlled equipment or displays on Web browsers. The information in the objects may be compiled by compiler 320 to produce code for run-time control program 325 that is executed directly by devices 330, 335, 160, and 170, or these devices may themselves interpret the information in the objects in object manager 315.

To program controller 100, the user employs programming interface 300. Programming interface 300 provides a GUI for specifying objects in object manager 315. The GUI is shown in FIGs. 4A-5C. FIG. 4A, which is specifically cited by Examiner in his rejection and which is explained beginning at col. 16, line 19, shows the properties currently associated with the CAPPER object in object manager 315. This object represents the capper in a bottling line The capper's properties include its name, shown at 410, and a set of "parts", shown at 415. As explained at lines 38-44, the parts are input signals specifying that the capper be raised or lowered and output signals indicating whether the capper is up or down. Thus, like the GUI of Hirsch's FIG. 10, the GUI of Crater's FIG. 4A specifies an action which is carried out by the equipment doing the processing; it does not specify an action which is carried out on records in object manager 315, as would be required if Hirsch were to read onto Applicants' claim 1.

Patentability of Applicants' claims over the references

Patentability of claim 1

Because Hirsch and Crater neither disclose singly nor in combination claim 1's action that is associated with a query, that modifies a value of a field of a record, and that is automatically performed when the query returns the record, they cannot either singly or in combination disclose a graphical user interface for specifying such an action. Since the combined references do not disclose all of the elements of claim 1, Examiner has not made his *prima facie* case of obviousness and his rejection of claim 1 is without basis. Claim 1 is the only independent claim in the application; consequently, if claim 1 is patentable, so are all of the other claims in the application.

Patentability of the dependent claims in their own rights over the references

Beginning with claims 2 and 3, these claims further specify the types of the identified field's values and the effect of the types on the interface. Since there is nothing corresponding to claim 1's field of a record that may be returned by a query in Hirsch or Crater, claims 2 and 3 are patentable in their own rights over Hirsch and Crater separately or in combination. Claims 4-19 all have to do with the actions that may be specified in

the action fields of the interface. These actions are of course performed on the identified fields, and since there is nothing in Hirsch or Crater about actions that are automatically performed on a field of a record when the record is returned by a query, the claims 4-19 are also patentable in their own rights over Hirsch and Crater separately or in combination.

Conclusion

Applicant has traversed all of Examiner's rejections of the claims and has therefore been completely responsive to the Office action of 11/8/2005, as required by 37 C.F.R. 1.111(b). Applicant consequently respectfully requests that Examiner continue with his examination as provided by 37 C.F.R. 1.111(a)(1). No fees are believed to be required by way of this response. Should any be, please charge them to Deposit Account Number 501315

Applicants' attorney would like to take this opportunity to again thank Examiners Bashore and Stevens for the courtesy which they extended to him during the interview of 2/6/2006.

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